planned surgery or intervention. Difference of success and access site complication rate was tested with chi square test. OR and its 95% CI were calculated with multivariate logistic regression analysis adjusted by patient background.
**Results:** 16 (19.5%) and 2 (11.1%) patients had access site complications in 18Fr and 14Fr group, respectively. No significant difference was obtained (p = 0.52). 73 (89.0%) and 18 (100%) patients had successful TAVI in 18Fr and 14Fr group, respectively. No statistical difference was observed in success rate as well (p = 0.36). Although 14 Fr group showed shorter fluoroscopic time, it was not significant (26.4 vs 27.2 min, p = 0.77). There was no difference in contrast amount (133.8 vs 141.4ml, p = 0.67). Adjusted OR of access site complication in 14 Fr compared to 18Fr was 0.20 (95%CI: 0.03-1.59, p = 0.12). OR of successful TAVI was not calculative since no failed case was observed in 14Fr group.
**Conclusions:** Compared with standard 18Fr sheath, 14Fr balloon expandable sheath showed lower complication rate, higher success rate, shorter fluoroscopic time and smaller amount of contrast use but they did not reach statistical significance. Further investigation should be needed.

## TCT-805

### Impact of Pulmonary Hypertension on Outcome after Transcatheter Aortic Valve Implantation

*Alexander Lauten[1], Ralf Zahn[2], Axel Linke[3], Sack Stefan[4], Markus Ferrari[1], Horst Sievert[5], Eberhard Grube[6], Ulrich Gerckens[7], Jochen Senges[8], Hans Figulla[1]*
*[1]University Heart Center Jena, Jena, Germany, [2]Department of Cardiology, Herzzentrum Ludwigshafen Germany, Ludwigshafen, Germany, [3]xxx, xx, MN, [4]Hospital Schwabing - Academic Municipal Hospital Munich, N/A, [5]CardioVascular Center Frankfurt, Frankfurt, Germany, [6]University Hospital Bonn, Bonn, Bonn, [7]Hospital St Petrus, Heart center Rhein-Ahr, Bonn, Germany, [8]Institut fuer Herzinfarktforschung, Essen, Germany*

**Background:** Pulmonary Hypertension (PH) is considered a significant risk factor in patients with aortic valve disease for and the prognostic implicationions of PH are unclear in high-risk patients undergoing Transcatheter Aortic Valve Implantation (TAVI). Therefore, we sought to assessed the impact of preoperative PH on outcome in patients undergoing TAVI.
**Methods:** Between January 2009 and June 2010, a total of 1285 patients undergoing TAVI were included in this registry (mean age 81.7±6.1, 41.9% males). Patients were grouped according to systolic pulmonary artery pressure (PASP): group I, 277 patients, (21.6%) with PASP <30mmHg, group II, 598 patients (46.5%) with PASP 30-50 mmHg and group III, 410 patients (31.9%) PASP >50mmHg. Patients in group III had a significantly higher Euroscore (26±16mmHG vs. group I 18±11mmHg vs. group II 18±11mmHg; p<0.0001) and were more symptomatic with a higher proportion presenting in NYHA class IV (28.5% vs. group I 13.6% vs. group II 8.3%; p<0.0001).
**Results:** In all subgroups, the majority of procedures was performed transfemorally with a high procedural success rate. The rate of TAVI-associated complications was comparable independent of PASP (cerebrovascular accident: group I 3.3% vs. group II 3.9 % vs. group III 2.0%, p=0.25; permanent pacemaker: group I 33.8% vs. group II 38.1 % vs. group III 35.2%, p=0.24). Functional NYHA class and survival at 30 days demonstrated excellent outcome in all subgroups (30-day survival group I: 91.2% vs. group II 93.0% vs. group III 91.9%; p=0.59). All subgroups experienced a significant improvement of self-assessed quality-of-life (according to EuroQol5d-visual analogue scale) with the largest gain in group III (0.112±0.35 vs. group I 0.055±0.32 vs. group II 0.04±0.32; p=0.15).
**Conclusions:** In conclusion, non-surgical patients severe AS have a high prevalence of PH. However, based on the registry data, early mortality after TAVI is not increased in patients with PH. This subgroup benefit from the procedure with functional improvement and improved postoperative quality-of-life.

## TCT-806

### Long-Term Outcomes From The CoreValve Transcatheter Aortic Valve Australia-New Zealand Study

*Ian Meredith[1], Tony Walton[2], Darren Walters[3], Stephen Worthley[4], Sanjeevan Pasaputi[5], John Ormiston[6], Robert Whitbourn[7], Gerald Yong[8], David Muller[9]*
*[1]Monash University, Melbourne, Australia, [2]Alfred Hospital, Melbourne, Victoria, [3]The Prince Charles Hospital, Brisbane, Queensland, [4]The University of Adelaide, Adelaide, Australia, [5]Waikato Hospital, Private Bag, New Zealand, [6]Associate Professor, University of Auckland Medical School, Auckland, New Zealand, [7]St Vincent's Hospital - Melbourne, Melbourne, Victoria, [8]Royal Perth Hospital, Perth, Western Australia, [9]University of NSW, Darlinghurst, Australia*

**Background:** Percutaneous transcatheter aortic valve implantation (TAVI) is a proven therapy for patients at high risk for surgical AV replacement. Although numerous studies have reported the safety and efficacy of TAVI, integration of this therapy into standard of care varies widely by country, and country-or region-specific data could support local adoption and approval. The CoreValve Australia-New Zealand Study (ANZ) is evaluating the safety and effectiveness of the CoreValve System (Medtronic, Minneapolis, MN) in an Australia-New Zealand patient population.
**Methods:** ANZ is a prospective, multicenter, single-arm, study enrolling patients with severe symptomatic AS from 10 experienced centers. Primary safety endpoints were; cardiac death (CD) and major adverse cardiovascular/ cerebrovascular events (MACCE; all-cause death, myocardial infarction [MI], stroke, or reintervention) at 30 days. All clinical source documentation will be fully monitored. An independent Clinical Events Committee adjudicated MACCE events and death based on VARC.
**Results:** Baseline characteristics (n=428) include: 45% women, age 83.9±5.9 y; 76.7% NYHA Class III/IV, STS 5.9±4.2, logEuroSCORE 17.6±11.0, 35.3% atrial fibrillation, 31.3% prior PCI, 25.7%.previous CABG; 20.1% prior MI, and prior balloon valvuloplasty in 22.7%. Procedural success was 98.4%.Vascular complications, major 4.0%; bleeding, life- threatening/disabling 4.7%, major 8.9%. At 30 days, 97.9% of patients were free from CD, 96.4% from stroke, and 85.8% from MACCE. 79.8% improved ≥1 NYHA class. AV area significantly improved by 1.2±0.5 cm2 and mean gradient by 41.7±16.7 mmHg; 81.6% of patients had ≤ mild AR. At 1 year, 93.5% were free from CD, 94.7% from stroke and 78.0% from MACCE. NYHA, AR, AV area and mean gradient improvements persisted at 1 year. PPM rates were evaluated by experience; for <30 implants, the PPM rate was 33.1%; for >30 implants; 19.9%. No valve migrations have been reported.
**Conclusions:** Early to midterm outcomes showed mortality and morbidity outcomes within expectations for percutaneously treated patients with severe symptomatic AS in this very high-risk subgroup. Longer term follow-up will be presented at the time of the meeting.

## TCT-807

### Self-expandable Transcatheter Aortic Valve Implantation for Aortic Stenosis after Mitral Valve Surgery

*Giuseppe Bruschi[1], Federico De Marco[1], Alberto Barosi[1], Luca Botta[1], Paola Colombo[1], Jacopo Oreglia[1], Sandra Nonini[1], Luigi Martinelli[1], Silvio Klugmann[1]*
*[1]Niguarda Ca' Granda Hospital, Milan, Italy*

**Background:** Transcatheter aortic valve implantation (TAVI) has emerged as a valuable option to treat patients with symptomatic severe aortic stenosis not being considered for surgery because of significant comorbidities. Concerns exist about treating patients who previously underwent mitral valve surgery for possible interference between the percutaneous aortic valve and the mitral prosthesis or ring.
**Methods:** At our Center from May 2008 one hundred sixty-one patients (74 male) with severe symptomatic aortic stenosis, mean age 81±9 years, were eligible for TAVI. Nine patients affected by severe aortic stenosis, previously underwent mitral valve surgery (4 mono-leaflet, 3 bi-leaflet, 1 bioprosthesis, 1 mitral ring); they were judged high risk surgical candidates, after combined cardiac surgeons and cardiologist evaluation, and underwent TAVI (Table I).
**Results:** Seven patients underwent standard femoral retrograde CoreValve implantation, two patient underwent a direct aortic implantation through a mini-thoracotomy. All patients experience immediate improvement of the hemodynamic status. No deformation of the nitinol tubing of the CoreValve neither distortion or malfunction of the mechanical valve or mitral ring occurred as assessed by echographic and fluoroscopic evaluation. No major post-operative complications occurred. In all patients echocardiography evidenced normal valve function during follow-up.

**Patient characteristics and results**

| | Nr | % or SD |
|---|---|---|
| Gender (female) | 7 | 77.7% |
| Mean Age (years) | 73.7 | 6.6 |
| Left Ventricle Ejection Fraction (%) | 34 | 12 |
| Mean Aoric Gradient (mmHg) | 48 | 14 |
| Mean STS Score Mortality (%) | 13.3 | 10.5 |
| PM Implant | 0 | – |
| Stroke | 0 | – |
| 30-day Mortality | 0 | – |

**Conclusions:** Our experience confirms the safety and feasibility of CoreValve implantation in patients with mechanical / biological mitral valves or mitral annuloplasty ring.

## TCT-808

### Expansion Geometry of the Edwards Sapien XT aortic valve following a MSCT guided oversizing approach

*Alexander Leber[1], Uli Ebersberger[2], Ellen Hoffmann[3], Markus Kasel[4]*
*[1]Sunnybrook Helth Science Centre, Toronto, Ontario, [2]Heart Centre, Munich Bogenhausen, Munich, BY, [3]Heart Centre Munich Bogenhausen, Munich, by, [4]German Heart Centre, Munich, Germany*

**Background:** So far device sizing before TAVI is recommended by Echo measurements which are however known to be somehow inaccurate taking into acount the oval shape of the anulus and device undersizing is a major cause for paravalvular regurgitation. In the current study we therefore assessed the post implantation expansion pattern and the functional performance of the Edwards Sapien XT (Edwards Lifesciences, California) device after TAVI and a MSCT guided sizing approach.

POSTERS

**Methods:** Pre- and postprocedural MSCT was performed in 40 patients. TAVI size selection was done on the basis of anulus cross sectional measurements by MSCT so that the nominal TAVI device CSA always exceeded the anNulus CSA. In preprocedural data sets we determined the valve calcium score, the CSA and the ovality index of the aortic anulus. In postprocedural data sets maximum and minimum diameter and the degree of circularity at three levels (ventricular end, anulus, aortic end) was determined.
**Results:** The average expansion ratio of the Edwards Sapien XT device was 95% and the circularity Index was 97%. In multivariate regression analysis neither calcium score nor ovality index of the native anulus were associated with under or non circular expansion of the device. The only parameter predicting underexpansion was the degree of oversizing. Underexpansion of the device was not associated with increased transaortic pressure gradients or with the incidence of paravalvular aortic regurgitation. The degree of oversizing was however positiveley associated with the incidence of new conduction disturbances. In the entire cohort no aortic regurgitation > mild was observed.
**Conclusions:** MSCT guided TAVI device sizing is associated with almost complete and symmetric expansion of the Edwards Sapien XT device and the absence of significant aortic regurgitation. Calcification or ovality of the native anulus do not influence the expansion pattern. To rigorous device oversizing however is associated with new conduction disturbances and device underexpansion.

### TCT-809

### Impact of New Conduction Defect After TAVI on Left Ventricular Function at 1-Year Follow-up

*Rainer Hoffmann[1], Rüdiger Autschbach[1], Ralf Herpertz[1], Sharam Lotfi[1], Nikolaus Marx[1]*
*[1]University Aachen, Aachen, Germany*

**Background:** New left bundle branch block (LBBB) or need for permanent pacing due to AV-block are frequent after transcatheter aortic valve implantation (TAVI). This study evaluated the impact of new conduction defect after TAVI on the evolution of left ventricular (LV) function during one year follow-up.
**Methods:** A total of 90 consecutive patients treated with TAVI and 12 months echocardiographic follow-up were included in the study. In 39 patients a new conduction defect (new LBBB or need for permanent pacemaker activity) persisted one month after TAVI. In 51 patients no persistent new conduction defect was observed. 2D echocardiography using parasternal short-axis, apical 4-chamber and 2-chamber views was performed before TAVI and at 1 year follow-up to determine left ventricular volumes and ejection fraction based on Simpson's rule. Speckle-tracking echocardiography was applied using standard LV short-axis images to assess the effect of new conduction defect on time-to-peak radial strain of different LV segments as parameter of LV dyssynchrony.
**Results:** New conduction defect resulted in marked heterogeneity in time-to-peak strain between the 6 analysed short-axis segments. During one year follow-up after TAVI there was a significant increase in LVEF in patients without new LBBB (53±11% pre to 59±10% at follow-up; p<0.001), while there was no change in LVEF in patients with new conduction defect (52±11% pre to 51±12% at follow-up, p=0.740). Change in LV endsystolic volume was also significantly different between patient groups (−1.0±14.2 vs. −11.2±15.7 ml, p=0.042). New conduction defect was an independent predictor of reduced LVEF at 12 months follow-up after TAVI.
**Conclusions:** LVEF improves after TAVI for treatment of severe aortic stenosis in patients without new conduction defect. In patients with a new conduction defect after TAVI, there is no improvement in LVEF at follow-up.

### TCT-810

### Assessment of Doubtful Aortic Stenosis by Measuring Simultaneous Transaortic Pressure: A Pilot Study With Fractional Flow Reserve Guidewire

*Romain Chopard[1], Marie-France Seronde[1], Sebastien Janin[1], Philoktimon Plastaras[1], Nicolas Meneveau[1], Francois Schiele[1]*
*[1]University Hospital Besancon, France, Besancon, France*

**Background:** Transthoracic echocardiography (TTE) is the reference technique for evaluating aortic stenosis (AS), but in certain cases, estimation of the average gradient and aortic valve area can be difficult. We aimed to assess the feasibility and utility of measuring simultaneous transaortic pressure using a fractional flow reserve (FFR) guidewire in doubtful aortic stenosis.
**Methods:** Between January 2009 and December 2011, 57 patients with symptoms possibly related to severe AS that was poorly evaluated by echocardiography underwent right and left heart catheterization for assessment of aortic valve area with the Gorlin & Gorlin formula. Transaortic pressure was obtained by 2 invasive methods, namely conventional pullback method from the left ventricle (LV) towards the aorta (PM) with subsequent computerized superposition of the pressure curves, and (2) simultaneous method using a FFR wire introduced into the LV (SM).
**Results:** Reasons for inaccurate assessment by echocardiography were atrial fibrillation (75%) and/or low LV ejection fraction (38%). Results of evaluation of mean aortic valve gradient and aortic valve area are summarized in the table below. Agreement between methods (using the kappa coefficient) for severe aortic stenosis defined by an aortic-valve area < 0.6 $cm^2/m^2$ was 0.36 between SM and PM, 0.07 between SM and TTE, and −0.12 between PM and TTE. These findings led to a decision to change therapeutic strategy in 8 patients (14%).
**Conclusions:** Simultaneous measurement of trans-aortic pressure using a FFR guidewire is feasible and may be an attractive and accurate method for evaluation of doubtful aortic stenosis.

| | Simultaneous pressure | Pullback method | Echocardiographic measurements |
|---|---|---|---|
| Mean aortic valve gradient, mmHg | 30.5±14.4 | 23.6±9.9 | 28.8±8.0 |
| p vs Pullback | <0.0001 | — | 0.0002 |
| p vs echo | 0.241 | — | — |
| Aortic valve area, $cm^2/m^2$ | 0.46±0.2 | 0.48±0.15 | 0.49±0.1 |
| p vs Pullback | 0.003 | — | 0.529 |
| p vs echo | 0.074 | — | — |

### TCT-811

### Hospitalisations costs of TAVI in Belgium. An analysis in one University Hospital

*Diana De Graeve[1], Raf Van Gestel[2], Carmen Ryvers[1], Inez Rodrigus[3], Johan Bosmans[4]*
*[1]University Of Antwerp, Antwerpen, Belgium, [2]University of Antwerp, Turnhout, Antwerp, [3]Antwerp University Hospital, Edegem, Belgium, [4]University Hospital Antwerp, Antwert, Belgium*

**Background:** Patients with severe aortic stenosis, but who are not good candidates for surgical aortic valve replacement can be treated with trans-catheter aortic valve implantation (TAVI). This latest technology however comes at a considerable cost. The objective of the current study is to calculate and analyse these costs.
**Methods:** Data were retrospectively collected from all patients who underwent a transaortic valve insertion in the University Hospital Antwerp from December 2007 until June 2011. Costs of hospitalisation were retrieved on the basis of invoices and patients characteristics from medical records. Costs were actualized to 2011 using 2011 tariffs and determinants analysed (Wilcoxon rank sum test and Spearman rho's correlation).
**Results:** 89 patients were included. Analyses are performed on 86 patients with complete cost data. All interventions were done by a single physician using Core Valve ®. Mean age of the patients was 82 years; 73% of patients are in NYHA 3 and 4. Mean costs amount to €38,521 (sd €8,587) with median costs only slightly smaller (€37,079). The costs of the valve (€17,090 per valve) and daily nursing and hotel costs (€ 594 per day) are most important, amounting to respectively 46% and 26% of total costs. There is weak evidence of a learning effect: costs decrease somewhat over the years (p=0.091). Pulmonary hypertension (p=0.04) and hyperlipidemia (0.0049) have a siginificant association with costs as well. The distribution of costs is not significantly different for other background characteristics of the patient. (see table 1)

POSTERS